

First Year Students and the Assessment of Information Literacy at Barnard

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INTRODUCTION

First year students arrive at Barnard generally very comfortable in front of a computer, able to use the web to satisfy their interest in popular culture, the arts or politics, and skilled at using websites like Facebook and YouTube to find information about people, movies or music. However, we in the library soon discover that many are at sea in dealing with scholarly information. In particular, they are often unclear as to how to distinguish between articles and books that are scholarly and those that may be well-written and seem authoritative, but are not scholarly. In addition, they have many questions about what constitutes plagiarism; they know that they must not do it, but they are often unclear as to exactly what it is. These, then, are some of the information literacy issues we are trying to deal with in our teaching of first year students at Barnard Library.

In 2006-07 at Barnard Library we carried out a formal assessment of both the level of students' information literacy when they arrive at college and of how effective we librarians were in delivering library instruction during their first semester.

Ideally, such assessment should be an on-going process, and I see this project as just the beginning of an effort to use a variety of assessment projects to identify the best ways to increase information literacy at Barnard. Assessment should be part of all our work in the library, part of the feedback loop that enables us to improve in our delivery of library services. As the American Association for Higher Education put it in 1995:

Assessment is an ongoing process aimed at understanding and improving student learning. It involves making our expectations explicit and public; setting appropriate criteria and high standards for learning quality; systematically gathering, analyzing, and interpreting evidence to determine how well performance matches those expectations and standards; and using the resulting information to document, explain, and improve performance. When it is embedded effectively within larger institutional systems, assessment can help us focus our collective attention, examine our assumptions, and create a shared academic culture dedicated to assuring and improving the quality of higher education.¹

The feedback process involved in doing assessment also provides an opportunity for increased communication between library users and library staff. This improved sense among the students and faculty that we are responsive to their needs is a good thing in itself.

INFORMATION LITERACY

The American Library Association defined information literacy in 1989 as a set of skills enabling a person "to be able to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information."²

¹ Angelo, Thomas A. 1995. *Reassessing and Defining Assessment*. The American Association for Higher Education (AAHE) Bulletin, 48 (2), November 1995, pp. 7-9.

² American Library Association. *Presidential Committee on Information Literacy Final Report*. Chicago: American

The Association of College and Research Libraries (ACRL) went on to approve Information Literacy Competency Standards for Higher Education in 2000. These standards defined each of the skills involved in information literacy in greater detail, as well as set out performance indicators and outcomes. The project to be described here, the First-Year Information Literacy in the Liberal Arts Assessment, used the ACRL standards as a basis for the design of the survey instrument used to measure the students' information literacy.

According to the ACRL standards, an information literate individual is able to:

- Determine the extent of information needed
- Access the needed information effectively and efficiently
- Evaluate information and its sources critically
- Incorporate selected information into one's knowledge base
- Use information effectively to accomplish a specific purpose
- Understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.³

At Barnard, we administered the survey both at the beginning of the fall semester of the students' first year, and again at the end.

FIRST-YEAR INFORMATION LITERACY IN THE LIBERAL ARTS ASSESSMENT (FYILLAA)

The aim of the FYILLAA project was to assess the information literacy of incoming college first year students. Barnard Library participated along with twenty other small liberal arts colleges. The project was led by Carleton College, St. Olaf College, and the National Institute for Technology and Liberal Education (NITLE), a non-profit organization with 114 members (including Barnard), dedicated to advancing liberal education in the digital age.

Carleton and St. Olaf College librarians had developed an assessment instrument called the Research Practices Survey. The aim was to provide a benchmark against which to measure growth in information literacy as students move through their academic programs. Librarians at the following colleges administered the survey in September 2006 to all first year students, or to a random selection of first year students, before they had received any library instruction. Participation rates ranged from 28% to 89% with eleven colleges greater than 44%. Altogether, nearly 4,400 students responded to the survey.

Library Association, 1989.

³ Association of College and Research Libraries. "Information Literacy Competency Standards for Higher Education." <http://www.ala.org/ala/mgrps/divs/acrl/standards/informationliteracycompetency.cfm> (accessed 18 November 2009)

FYILLAA Participants 2006-07:

Barnard	Grinnell	Ripon
Carleton	Hendrix	St. Olaf College
College of Wooster	Juniata	Swarthmore
Cornell College	Knox College	Trinity University
Denison	Lake Forest College	University of Puget Sound
DePauw University	Lewis and Clark	Wellesley
Dickinson	Macalester	

The survey was sent out to the first year students by e-mail messages containing individualized links to the survey on the FYILLAA website. Some of the questions in the survey asked students about their feelings about libraries, or their past experiences with libraries, while other questions asked them to show how much they actually knew about search strategies and about identifying or evaluating sources. The dimensions assessed were:

- Experience, or what can/do students do?
- Attitude, or what do students value?
- Epistemology, or what do students believe?
- Knowledge, or what do students know?
- Critical capacities, or how do students evaluate?

The pre-test survey, which is available at <http://www.barnard.edu/library/assessment/pretest.htm>, was completed by 232 students at Barnard in September 2006. At the end of the semester, we administered another survey (the post-test) to find out what, if any, changes had occurred in the students' information literacy after one semester at Barnard.

SELECTED RESULTS OF THE PRE-TEST

First, Barnard students did not stand out as being significantly different from the incoming first year students at the other colleges which administered the survey. They claimed, in general, to feel comfortable and confident about doing research.

- 84% had had experience using online academic journals in high school, and about half of them had used electronic indexes/databases (Question 6).
- 73% said that developing a list of sources to investigate was very or somewhat easy (Question 12b).
- 71% said that using a library catalog was very or somewhat easy (Question 13a).
- 73% said that using electronic indexes and databases was very or somewhat easy (Question 13b).
- Over half of them (54%) do the bulk of their research for a paper right before its due date (Question 11).

However:

- Only 30% were able to identify correctly the best search statement (movies OR films) for retrieving the maximum number of results in an online search (Question 17).
- Only 12% knew how to truncate a search term in a keyword search (Question 18).
- Only 37% were able to select the most appropriate source for finding scholarly articles (Question 24).

- Students are confused about the differences between scholarly and non-scholarly materials (Questions 20, 25, 28c, and 28g)
- Nearly half of them believed that if an article is published in *Time*, *Newsweek* or *US News and World Report* it must be scholarly (Question 28h).
- Nearly 30% said it was very or somewhat difficult to know when to document a source (Question 14c).
- Over 80% felt that “a course in research skills” would be useful (Question 16b).

THE POST-TEST

We hypothesized that there would be some change in the average level of the students’ information literacy between September and December due to their experience of college-level research and the fact that some of them receive instruction in library research during the fall semester. We saw an opportunity to carry out an experiment to assess our teaching in the fall semester, because we teach half of the first year students each semester. Those who take First Year English come to the library as a class for a one-shot library session lasting one hour and fifteen minutes. In this session we discuss with them the research tools they will need for the required research paper. The other half of the students, who take First Year Seminar in the fall semester, do not come to the library for a formal instruction session in the fall. They receive library instruction in the spring semester when they take First Year English. By comparing the results of the two groups, we could find out, we hoped, how much benefit the students were getting from our teaching, and in what areas we could do better.

I re-wrote some of the survey questions and mounted it on SurveyMonkey.com. The link to the post-test survey, which is available at <http://www.surveymonkey.com/s.asp?u=291852991747>, was sent to all first year students by e-mail in early December 2006. The e-mails for both the pre-test and the post-test made it clear that participation was voluntary. For participation in the post-test, we offered an incentive. Amazon gift certificates were given to three students drawn at random from the list of participants. 89 students responded who had not attended a library instruction session, and 116 students responded who had.

SELECTED RESULTS OF THE POST-TEST

In general, the differences between the students who had received library instruction and those who had not were not large. On the whole, they were not statistically significant using the Chi-square test. The percentage of students who were confused about scholarly versus non-scholarly materials, and about citations, was about the same in the two groups, and remained about the same as in September. This is discouraging, because it implies that our teaching doesn’t have much effect in this area. Clearly, a one-shot library session of 75 minutes is not long enough to clear up confusion in this area, and can only serve as a quick introduction to library resources.

Here are some other selected results:

- 9% of those who did not have library instruction said they had not been into the library at all during the semester, while almost half of those who did have instruction said that they used the library once or twice a month (Question 1c).

- 53% of those who did not receive library instruction said they had never consulted a librarian during the fall semester, while only 23% of the group who received instruction said this (Question 9b).
- Usage of reference books was much higher among those who had library instruction - 45% as opposed to 19%. Perhaps this is because we make a point in the library session of showing them the value of using scholarly reference works at the start of their research (Question 5b).
- About half of both groups reported consulting their parents or other adult family members for help with research during the semester! (Question 9c)
- Both groups of students continued to show a great deal of confusion about the differences between scholarly and non-scholarly materials (Questions 20, 25, 28c, and 28g).
- They are also confused about plagiarism. 20% of those who received library instruction, and 24% of those who didn't, were unclear when a citation is required in a paper (Question 27).
- 57% of the students who did not have instruction said that using an electronic index was very or somewhat easy, while 75% of those who did have instruction said this (Question 13b).
- 54% of those who received library instruction were able to identify the best search statement for retrieving the maximum number of results in an online search (Question 17), while only 36% of those who hadn't received library instruction could do this. In September, only 30% of all the students who responded were able to do this, so there was some improvement over the course of the semester.
- 51% in the library instruction group knew how to truncate a search term in a keyword search (Question 18), while only 17% who hadn't received library instruction knew this (it was 12% in September).

CONCLUSIONS

The pre-test confirmed our impression of the first year students; they arrive at Barnard feeling pretty confident in their ability to do research online. 88% said they had used a library in the past year and 73% said that a teacher or a librarian had talked with one or more of their classes about how to use library resources. Many high schools provide access to online databases, as do most public libraries, so many students have had the opportunity to carry out some scholarly research online before starting college. However, when they have to do scholarly research at the college level they often find themselves very confused about the definition of what is scholarly. They need help with critical thinking about information sources, and they need to become more sophisticated about evaluating sources to find the best information. It is also clear from the results of the post-test that they also need to be taught the details of searching, like how to do the most efficient search in the library catalog.

Information literacy is a broad set of skills needed in many areas of life, and teaching it in a one-shot library instruction session is impossible. During this session, the librarian has only a very brief time with the students in which to attempt a huge task: to allay the students' anxieties about writing their research papers, to resolve their confusion about library resources, to introduce them to many new skills they will need in order to do college-level research, and to discuss with them how to evaluate information, to help them to become educated and ethical users of information. It is imperative for us to use various methods of assessment to analyze our teaching methods on an ongoing basis, to improve the delivery of our instruction.

Bibliography on the Assessment of Information Literacy

Brown, A. G., Weingart, S., Johnson, J. R. J., & Dance, B. (2004). Librarians don't bite: Assessing library orientation for freshmen. *Reference Services Review*, 32(4)

Evaluates the effect of the library component of a freshman orientation program on student attitudes and library anxiety at Utah State University in the fall of 2003. First year students showed a moderate level of library anxiety prior to their library orientation sessions, and it significantly decreased after the orientation sessions. A control group reported similar anxiety levels on the pre-test and a much smaller degree of improvement on the post-test. Proposes that academic libraries should participate in the First-Year Experience programs on their campuses, to reduce the levels of library anxiety felt by first-year students and reduce possible barriers to academic achievement.

Byerly, G., Downey, A., & Ramin, L. (2006). Footholds and foundations: Setting freshmen on the path to lifelong learning. *Reference Services Review*, 34(4)

The University of North Texas librarians developed Library Instruction Software for Assessment (LISA) to assess one-shot library instruction sessions. Students had more difficulty using some tools more than others, namely the catalog. The post-test showed that student performance searching the catalog and Academic Search Premier improved with library instruction. The findings indicate that one-shot library instruction can have a positive effect on the information literacy level of students, and offers insight into areas of improvement for instruction sessions.

Carter, E. W. (2002). "Doing the best you can with what you have:" lessons learned from outcomes assessment. *Journal of Academic Librarianship*, 28(1/2), 36.

Discusses outcome focused assessments of library research instruction using pre-tests and post-tests, attitude and usage surveys, and focus groups. Assessment results influence library instruction content, staffing, collection development and collaboration with other faculty and academic departments.

Choinski, E., & Emanuel, M. (2006). The one-minute paper and the one-hour class: Outcomes assessment for one-shot library instruction. *Reference Services Review*, 34(1), 148.

An "outcomes" assessment tool was created based on the ideas of the one-minute paper and student reflection papers, as an assessment tool for one-shot library instruction classes that is objective, quantitative, easy to use, and flexible. The tool was administered to classes in Spanish and Biology that had one shot library sessions. The assessment tool was helpful in pointing out areas where librarians need to improve instruction in their one shot classes. The tool's use may be limited to institutions where there is excellent rapport between librarians and course instructors or to libraries with a staff large enough to find volunteers to grade the papers outside of the course librarian.

Flaspohler, M. R. (2003). Information literacy program assessment: One small college takes the big plunge. *Reference Services Review*, 31(2), 129.

Examines the effectiveness of an instruction program offered at a four-year liberal-arts college. Working with five faculty members, information literacy goals were clearly articulated and implemented into nine sections of first-year writing and speaking courses. Bibliographic analysis, an information literacy questionnaire, and an in-class writing exercise were used to determine whether students in the pilot groups performed better than students receiving the program's customary library training

Judd, V., Tims, B., Farrow, L., & Periatt, J. (2004). Evaluation and assessment of a library instruction component of an introduction to business course: A continuous process. *Reference Services Review*, 32(3), 274.

This paper discusses the ongoing process of creating, evaluating and assessing the library instruction (LI) component of an undergraduate introduction to business course. Business faculty and librarians worked collaboratively in this process. The changing content and format of the LI sessions are discussed, as well as the development of assignments. The paper attempts to evaluate the LI component in terms of its goals, content, format and effectiveness in instruction; and to assess the outcome in terms of student learning. A construct of instructional effectiveness based on three components - operational, constitutive, and behavioral definitions - was created and the evaluation form derived from this construct.

Knight, L. A. (2002). The role of assessment in library user education. *Reference Services Review*, 30(1), 15.

In response to a growing need for the library to articulate the success of its efforts in terms of student learning outcomes, librarians at the University of the Pacific Library developed a plan to assess library instruction. The assessment project included the selection of a population, the development of learning objectives, the development of assessment devices, and data collection and analysis. This paper describes the process and presents the results of a case study of assessment of library instruction for first-year students. Suggestions as to how assessment can lead to the development of good practices in both instruction and evaluation are given.

Knight, L. A. (2006). Using rubrics to assess information literacy. *Reference Services Review*, 34(1), 43.

Reports the results of an assessment study of undergraduate students' achievement of information literacy learning outcomes in a first-year research and writing course, by assessing bibliographies compiled by the students. The librarian and other faculty members created a scoring rubric based on course learning objectives and the (ACRL) Information Literacy Competency Standards for Higher Education. The rubric was used to score the bibliographies to determine the students' levels of mastery of the objectives, their use of library-licensed vs freely available web sources, and differences among the classroom learning environments. The paper finds that students' academic work is a useful gauge of their achievement of information literacy-based learning outcomes. A rubric is a valuable assessment tool that provides a reliable and objective method for analysis and comparison. Research in assessment offers libraries the opportunity to measure their contribution to the educational missions of their institutions. As there is no "one size fits all" in assessment, it is important to explore and publish a variety of assessment approaches to expand this area of knowledge. The results of this study led to certain changes in the library's delivery of instruction.

Mark, A. E., & Boruff-Jones, P. D. (2003). Information literacy and student engagement: What the national survey of student engagement reveals about your campus. *College & Research Libraries*, 64(6), 480-493.

The annual National Survey of Student Engagement (NSSE) measures undergraduate "participation in programs and activities that institutions provide for their learning and personal development."(FN1) Each item on the survey correlates to one of five benchmarks of "empirically confirmed 'good practices' in undergraduate education." The NSSE is an excellent diagnostic fit with the Information Literacy Competency Standards for Higher Education because learning outcomes can be correlated with student engagement. This article presents case studies from the University of Mississippi and

Indiana University-Purdue University Indianapolis to demonstrate how librarians can apply NSSE results for the purpose of assessment.

McGuinness, C., & Brien, M. (2007). Using reflective journals to assess the research process. *Reference Services Review*, 35(1), 21-40.

The purpose of this paper is to show how the use of reflective research journals to assess students on a Stage One information literacy (IL) module can offer unparalleled insight into the complex information research processes and subjective learning experiences that lie behind the production of an academic essay. Research journals created by 109 students were analyzed qualitatively to reveal an iterative, problem-strewn process, mostly culminating in deep satisfaction at the eventual production of an acceptable academic essay. Students' experiences of research are discussed under three key themes: Problems and Challenges; Enjoyment and Pride; and Learning Experience. Research journals offer an alternative mode of assessment which may be adopted by IL instructors wishing to focus on the students' subjective experience of "becoming information literate." Traditional, quantitative forms of assessment do not offer the same insight into the actual process of doing research, instead focusing on what the students say they know, rather than demonstrate it performatively.

Paglia, A., & Donahue, A. (2003). Collaboration works: Integrating information competencies into the psychology curricula. *Reference Services Review*, 31(4), 320.

When many upper-level psychology majors struggle to demonstrate competence using library research strategies after participating in introductory BI sessions, a new approach to instruction is necessary. To address this issue, psychology and library faculty collaborated on a pilot study to develop, implement, and assess a "super-size bibliographic instruction" (SSBI). The objectives include identifying and defining a research topic, locating appropriate resources, critically evaluating and synthesizing material, and the reduction of library anxiety. A variety of assessment methods are described, including pretest/posttest surveys.

Pukkila, M. R. (2006). The other side of the podium: Student information needs from inside the classroom. *College & Research Libraries News*, 67(3), 162-164.

Pukkila relates her experiences in auditing courses at Colby College with the intention of observing students' information needs within the classroom and in the context of their entire courses during her fall 2004 semester sabbatical. She recommends that all teaching librarians find ways to explore the information needs of their students.

Ratteray, O. M. T. (2002). Information literacy in self-study and accreditation. *The Journal of Academic Librarianship*, 28(6), 368-375.

An approach to information literacy that institutions seeking to manage collections of data on student information literacy skills could utilize is outlined. The approach is partially based on an interpretation of Characteristics of Excellence in Higher Education, the revised standards for accreditation in the Middle States region that include significantly enhanced references to information literacy. Emerging ideas from some of the library community and its supporters also form part of the basis for the approach. The approach involves the discussion of information literacy as a learning outcome under the headings of students' knowledge, skills, and competencies; curriculum and instruction; and institutional resources and processes.

Somerville, M. M., Lampert, L. D., Dabbour, K. S., Harlan, S., & Schader, B. (2007). Toward large scale assessment of information and communication technology literacy: Implementation considerations for the ETS ICT literacy instrument. *Reference Services Review*, 35(1), 8-20.

Provides guidance to those contemplating or preparing to administer a large scale information literacy assessment such as the ETS ICT assessment instrument. The case studies and literature review provide real life examples of how to consider implementing the ETS ICT instrument with special attention to issues such as collaboration, timing, marketing, budgeting, and developing a strategy that includes a discussion of how testing results will inform campus information literacy curriculum development and programming. The planning and implementation by two California State University campuses that administrated beta test versions of the ETS ICT assessment instrument are documented.

Sonley, V., Turner, D., Myer, S., & Cotton, Y. (2007). Information literacy assessment by portfolio: A case study. *Reference Services Review*, 35(1), 41-70.

Reports the results of a case study evaluating the revision of the assessment methods of an information literacy module. The revised assessment method took the form of a portfolio. During 2004, all six credit modules at the University of Teesside had to be reviewed and restructured into ten credit modules. An evaluation of the assessment method was undertaken after the module had run. The assessment method had real strengths especially in terms of validity. It was also economical and efficient. Students knew what they were expected to do and where they needed to put in effort. The assessment by a portfolio method has been carried out once with a relatively small cohort of students, so the findings can only be regarded as interim.

Ursin, L., Lindsay, E. B., & Johnson, C. M. (2004). Assessing library instruction in the freshman seminar: A citation analysis study. *Reference Services Review*, 32(3), 284.

In light of the general emerging focus on assessment, it is imperative that librarians develop effective methods for evaluating their instructional endeavors. This study involved analyzing the frequency with which Washington State University Freshman Seminar students used items from librarian-constructed resource guides. In addition, the researchers evaluated the quality of Web sites used in the freshman seminar final projects. Regardless of the information format and special treatment to place resource guide items at their fingertips, students largely did not use the librarian-recommended resources. Citation analysis of the student Web sites exhibited a broad spectrum of quality levels and raised key questions about Web site evaluation. Ideas for improving student resource selection are discussed.

Warner, D. A. (2003). Programmatic assessment: Turning process into practice by teaching for learning. *Journal of Academic Librarianship*, 29(3), 169.

In order to improve our library instruction program by identifying and responding to learning problems, a formal pilot assessment was conducted with a group of 48 students enrolled in a summer 2001 pre-freshmen program. The group chosen as a base line group provided us with the opportunity to work with students in four sequential library instruction sessions, allowing us to observe, reflect and respond to learning needs between each session. In the process of designing and executing the assessment system we changed and improved our teaching methods to address the learning problems we discovered. Our intent was to improve the library instruction program in our medium-sized university library by applying what we learned from the pilot to the more typical "one shot" library instruction sessions.